

JA

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 4/25/14
API #: 47-049-02223

Farm name: John Markovich Operator Well No.: Four States Unit A 7H

LOCATION: Elevation: 1,249' Quadrangle: Shinnston 7.5'

District: Lincoln County: Marion
Latitude: 8,930' Feet South of 39 Deg. 30 Min. 00 Sec.
Longitude 11,430' Feet West of 80 Deg. 15 Min. 00 Sec.

Company: XTO Energy Inc

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
PO Box 1008, Jane Lew, WV 26378	24"	76'	76'	135 cuft
Agent: Gary Beall	13 3/8"	577'	577'	882 cuft
Inspector: Bill Hendershot	9 5/8"	3,113'	3,113'	1322 cuft
Date Permit Issued: <u>8/02/2012</u>	5 1/2"	12,380'	12,380'	2549 cuft
Date Well Work Commenced: <u>3/1/2013</u>				
Date Well Work Completed: <u>2/2/14</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7,626'</u>				
Total Measured Depth (ft): <u>12,440'</u>				
Fresh Water Depth (ft.): <u>75', 548'</u>				
Salt Water Depth (ft.): <u>None noted</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>412', 545'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7586' - 7625'
Gas: Initial open flow 0 MCF/d Oil: Initial open flow NA Bbl/d
Final open flow 3237 MCF/d Final open flow NA Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 2916 psig (surface pressure) after 24 Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.


Signature

4-28-14
Date

05/23/2014

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Were core samples taken? Yes _____ No **X** _____

Were cuttings caught during drilling? Yes **X** _____ No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, ROP, Directional Survey, Total Gas, Mudlogs

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Stg 1 Marcellus; 12083'-12309'; 60 shots; Slick water frac; Avg treating 8707 psi@80 bpm; 114069#s 100 mesh; 339121#s 30/50 mesh; 10684 bbl water

Stg 2 Marcellus; 11696'-11920'; 60 shots; Slick water frac; Avg treating 8826 psi@80 bpm; 112300#s 100 mesh; 348200#s 30/50 mesh; 10069 bbl water

Stg 3 Marcellus; 11467'-11693'; 60 shots; Slick water frac; Avg treating 8797 psi@79 bpm; 113000#s 100 mesh; 344100#s 30/50 mesh; 10054 bbl water

Stg 4 Marcellus; 10772'-10998'; 60 shots; Slick water frac; Avg treating 8435psi@81 bpm; 112100#s 100 mesh; 341100#s 30/50 mesh; 10627 bbl water

Stg 5 Marcellus; 10851'-11077'; 60 shots; Slick water frac; Avg treating 8423 psi@85 bpm; 113400#s 100 mesh; 336200#s 30/50 mesh; 10008 bbl water

See additional page

Plug Back Details Including Plug Type and Depth(s):

<u>Formations Encountered:</u>	<u>Top Depth</u>	<u>Bottom Depth</u>
<u>Surface:</u>		

See attached

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Stg 6 Marcellus; 10392'-10452'; 60 shots; Slick water frac; Avg treating 7618 psi@86 bpm; 115100#s 100 mesh; 304800#s 30/50 mesh; 9724 bbl water

Stg 7 Marcellus; 10120'-10362'; 60 shots; Slick water frac; Avg treating 0 psi@0 bpm; 0#s 100 mesh; 11100#s 30/50 mesh; 3300 bbl water

Stg 8 Marcellus; 9883'-10025'; 60 shots; Slick water frac; Avg treating 8081 psi@82 bpm; 112600#s 100 mesh; 339600#s 30/50 mesh; 10361 bbl water

Stg 9 Marcellus; 9540'-9766'; 60 shots; Slick water frac; Avg treating 8116psi@76 bpm; 112000#s 100 mesh; 332400#s 30/50 mesh; 9919 bbl water

Stg 10 Marcellus; 9232'-9458'; 60 shots; Slick water frac; Avg treating 7137 psi@78 bpm; 110600#s 100 mesh; 335800#s 30/50 mesh; 11126 bbl water

Stg 11 Marcellus; 8924'-9150'; 60 shots; Slick water frac; Avg treating 7397 psi@80 bpm; 113000#s 100 mesh; 334900#s 30/50 mesh; 9762 bbl water

Stg 12 Marcellus; 8616'-8842'; 60 shots; Slick water frac; Avg treating 7120 psi@80 bpm; 109700#s 100 mesh; 338300#s 30/50 mesh; 9825 bbl water

Stg 13 Marcellus; 8308'-8534'; 60 shots; Slick water frac; Avg treating 7082 psi@80 bpm; 118700#s 100 mesh; 344100#s 30/50 mesh; 10025 bbl water

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Four States Unit A 7H	Fresh Water:	10 GPM @ 75'
47-049-02223		50 GPM @ 548'
Formation Name or Type	Top (MD)	Bottom (MD)
Hard Rock	0	3
Gray Shale	3	110
Gray Shale	110	135
Gray / White Sand	135	200
Gray Shale	200	290
Gray Shale / Sand	290	412
Coal	412	417
Gray Shale	417	470
Gray Sand / Shale	470	545
Fractured Coal Seam	545	548
Sand/Shale	548	680
Sand/Siltstone/Shale	680	2480
Shale/Sand	2480	3250
Shale/Sand/Siltstone	3250	3300
Shale/Siltstone	3300	3590
Shale/Sand/Siltstone	3590	4570
Shale/Siltstone	4570	5907
Shale	5908	7153
Geneseo Shale	7154	7524
Tully Limestone	7525	7592
Hamilton Shale	7593	7687
Upper Marcellus Shale	7688	7883
Purcell Limestone	7684	7893
Lower Marcellus Shale	7894	TD

Four States 7H

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FORMATION	TVD
BIG LIME*	1873
BIG LIME BASE*	1954
BIG INJUN*	1954
BIG INJUN BASE*	2006
SQUAW*	2034
SQUAW BASE*	2047
BEREA*	2305
BEREA BASE*	2313
GANTZ*	2428
GANTZ BASE*	2445
50FT SAND*	2479
50FT SAND BASE*	2525
30FT SAND*	2592
30FT SAND BASE*	2635
GORDON*	2665
GORDON BASE*	2685
LOWER GORDON*	2796
LOWER GORDON BASE*	2824
4TH SAND*	2860
4TH SAND BASE*	2889
5TH SAND*	2934
5TH SAND BASE*	2959
LOWER SPEECHLEY*	3540
LOWER SPEECHLEY BASE*	3550
UPPER BALLTOWN*	3757
UPPER BALLTOWN BASE*	3800
BALLTOWN*	3830
BALLTOWN BASE*	3925
LOWER BALLTOWN*	3958
LOWER BALLTOWN BASE*	3992
GENESEO SHALE	7278
TULLY LIMESTONE	7333
HAMILTON SHALE	7381
MARCELLUS SHALE	7443
PURCELL LIMESTONE	7544
LOWER MARCELLUS	7547

* Tops projected from offset log due to air drilling and therefore not logging this section

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CELLS WITH BLUE BACKGROUND ARE THE ONLY CELLS TO BE EDITED

Fracture Start Date/Time:	12/6/13 0:00
Fracture End Date/Time:	2/3/14 0:00
State:	West Virginia
County:	Marion
API Number:	47-049-02223-0000
Operator Number:	X1210129
Well Name:	Four States A TH
Federal Well No	No
Longitude:	
Latitude:	
Long/Lat Projection:	NAD27
True Vertical Depth (TVD):	7,626
Total Clean Fluid Volume* (gals):	5,888,526



Additive	Specific Gravity	Additive Quantity	Mass (lbs)
Water (Clean - Acid - Chemicals)	1.00	5,888,526	5,888,526
Sand (Proppant) (lbs)	1.00	5,843,500	5,843,500
10% Acid	1.05	1,397	1,466
7.5% Acid	1.04	34,699	36,080
Acid Inhibitor, Umihib G	0.93	18	18.7
Bioicide, EC6116A	1.25	576	720
Clay Stabilizer, Clay Check G	1.08	0	0
Friction Reducer, Unislick ST-50	1.05	3,226	3,387
Scale Inhibitor, ScaleHib A	1.28	577	738
Gel Breaker, LEB-10X	1.20	0	0
Unijel SF	1.00	0	0
Slurry Gel, WGA-7 SLR	1.07	0	0
Total Slurry Mass (Lbs)			55,336,406

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	XTO	Carrier/Base Fluid	Water	7732-18-5	100.00%	49,139,749	88.80185%	
Sand (Proppant)	Universal	Proppant	Silica Substrate		100.00%	5,843,500	10.51906%	
Hydrochloric Acid (10%)	PPG Industries	Acidizing	Hydrochloric Acid	7647-01-0	10.00%	1,324	0.00231%	
Hydrochloric Acid (7.5%)	PPG Industries	Acidizing	Other - (non-hazardous)		85.00%	10,405	0.01880%	
Acid Inhibitor, Umihib G	GeoSole	Acid Inhibitor	Hydrochloric Acid	7647-01-0	7.50%	22,536	0.04073%	
Bioicide, EC6116A	Nalco	Bioicide	Other - (non-hazardous)		92.50%	277,944	0.50228%	
Clay Stabilizer, Clay Check G	Slurvec	Clay Stabilizer	Proprietary Blend Surfactants	112-34-5	50.00%	68	0.0012%	
Friction Reducer, Unislick ST-50	CEESI Chemical	Friction Reducer	Short Chained Glycol Ether		35.00%	68	0.0012%	
Scale Inhibitor, ScaleHib A	Nalco	Scale Inhibitor	Ethoxylated alcohol		35.00%	68	0.0012%	
Gel Breaker, LEB-10X	Universal	Gel Breaker	Dihromacetamide	3252-44-5	5.00%	360	0.00054%	
Unijel SF	Universal	Gel	2,2-Dibromo-3-nitropropionamide	10222-01-2	30.00%	1,802	0.00326%	
Slurry Gel WGA-7 SLR	Universal	Gel	Polyethylene Glycol	25222-68-3	60.00%	3,604	0.00654%	
			Other - (non-hazardous)		5.00%	300	0.00054%	
			Water	7732-18-5	85.00%	0	0.00000%	
			Perosium disulfates, hydrogenated light	64742-47-8	30.00%	8,439	0.01525%	
			Other - (non-hazardous)		70.00%	19,691	0.03558%	
			Ethylene Glycol	107-21-1	30.00%	7,849	0.01394%	
			Other - (non-hazardous)		70.00%	4,314	0.00780%	
			Ethylene Glycol	107-21-1	40.00%	0	0.00000%	
			Other - (non-hazardous)		60.00%	0	0.00000%	
			Guar Gum	9009-30-0	99.00%	0	0.00000%	
			Other - (non-hazardous)		1.00%	0	0.00000%	
			Guar Gum	9009-30-0	50.00%	0	0.00000%	
			Petroleum Distillate	64742-47-8	55.00%	0	0.00000%	
			Clay		5.00%	0	0.00000%	
			Surfactant		5.00%	0	0.00000%	
			Buffer		5.00%	0	0.00000%	

*Total Water Volume sources may include fresh water, produced water, and/or recycled water
 ** Information is based on the maximum potential for concentration and thus the total may be over 100%.
 All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary," "trade secret," and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.120(k) and Appendix D.

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 APR 30 2014
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